



Dear Valued Customer

Issue date: September 1, 2026

Yasushi Hamazawa  
Director

LSI Production Headquarters  
ROHM Co., Ltd.

**Notification of Product/Process Change**  
**Doc. No.: 102600E**

This letter intends as a formal notification of change to products which are currently supplied by ROHM Co., Ltd.

ROHM Co., Ltd. requires customers to provide acknowledgment of the receipt of this notification within 30 days from the date of this notice. Lack of acknowledgment of this notice within 30 days is considered as acceptance of the change.

After acknowledgement of the customer, lack of additional response within 90 day period constitutes acceptance of the change according to JEDEC Standard J-STD-046.

Your understanding and cooperation would be highly appreciated.

Issue Date: September 1, 2026

|                                                        |                                                                                                                                                                       |                                                                                                                                                                               |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title of change                                        | LSI bonding wire material change from gold to copper, and package material change<br>September 2026                                                                   |                                                                                                                                                                               |
| Affected product(s)                                    | Manufacturer part number                                                                                                                                              | Customer part number                                                                                                                                                          |
|                                                        | Refer to the attachment.                                                                                                                                              |                                                                                                                                                                               |
| Detailed description<br>of change                      | Before                                                                                                                                                                | After                                                                                                                                                                         |
|                                                        | Wire Material : Gold                                                                                                                                                  | Wire Material : Copper<br>The mold resin material will be changed as part of the wire material change.In addition, the lead frame will be changed for certain product models. |
| Reason for change                                      | In order to ensure stable supply of our products, we intend to submit a PCN to change the bonding wire material from gold to copper.                                  |                                                                                                                                                                               |
| Anticipated impact<br>on quality                       | There are no impact on the quality.                                                                                                                                   |                                                                                                                                                                               |
| Identification of change                               | Identification is possible using the internal part number on the product label.                                                                                       |                                                                                                                                                                               |
| Planned first ship date                                |                                                                                                                                                                       | October 1, 2027                                                                                                                                                               |
| Qualification plan<br>schedule, results and<br>samples | If required, please contact the local ROHM sales office or the authorized distributor.                                                                                |                                                                                                                                                                               |
| Comments                                               | For customers who provide approval before the response deadline, the changeover will be implemented sequentially for part numbers that are ready for mass production. |                                                                                                                                                                               |
| Supplier contact                                       | Please contact the local ROHM sales office or the authorized distributor.                                                                                             |                                                                                                                                                                               |
| Notes                                                  |                                                                                                                                                                       |                                                                                                                                                                               |
|                                                        |                                                                                                                                                                       |                                                                                                                                                                               |

Control Number : 102600E

## PCN Description

# LSI bonding wire material change from gold to copper, and package material change

(September 2026)

Sept. 1<sup>st</sup>, 2026

LSI Package Engineerings Div.

LSI Production Headquarters

ROHM Co., Ltd.

# LSI bonding wire material change from gold to copper

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# 1. Background

## <Background and Purpose of change>

The price of gold has been rising in recent years, and this trend continues. In order to ensure stable supply of our products, we will submit a PCN to change the bonding wire material from gold (Au) to copper (PdCu), and the package material will be changed.

## <Schedule>

Reply due : September 30, 2027

Planned first ship date : October 1, 2027

\*For customers who provide approval before the response deadline, the changeover will be implemented sequentially for part numbers that are ready for mass production.

## 2. Object Parts List

The wire material, mold material, and lead frame will be changed, depending on the object parts.

| Part number                                                           | Package type | Changing points |            |               | Pattern |
|-----------------------------------------------------------------------|--------------|-----------------|------------|---------------|---------|
| BD39003EKV-CE2                                                        | HTQFP48V     | Wire material   |            | Mold material | A       |
| BD14215FVJ-LAE2    BD14230FVJ-CE2    BD14231FVJ-CE2    BD14232FVJ-CE2 | TSSOP-B8J    |                 |            |               |         |
| BD63032MUF-CE2    BD63033MUF-CE2                                      | VQFN48FBV070 |                 |            |               |         |
| BD9571MWF-ME2                                                         | UQFN88FV0100 |                 |            |               |         |
| BM60014FV-CE2                                                         | SSOP-B20W    | Wire material   | Lead frame | Mold material | B       |
| BD79124MUF-CE2                                                        | VQFN16FV3030 | Wire material   | Lead frame | Mold material | C       |

## 3-1. Comparison of 4M

This page provides information  
about products in patterns A to C.



Gold wire products and copper wire products will be produced with the equivalent Machine and Method.

|              |          |                         | Before change / Gold wire products      |                                           | After change / Copper wire products        | Changing point                                                                                                                                                                                                   |
|--------------|----------|-------------------------|-----------------------------------------|-------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Package Name |          |                         | Refer to Parts List                     |                                           | Refer to Parts List                        | No change                                                                                                                                                                                                        |
| Factory      | Assembly | Production Site         | ROHM Electronics Philippines, Inc.      | Rohm Integrated Systems Thailand Co., Ltd | Same as the left                           | No change                                                                                                                                                                                                        |
|              |          | Country                 | Philippines                             | Thailand                                  | Same as the left                           |                                                                                                                                                                                                                  |
|              |          | personnel               | Approximately 4,000 people              | Approximately 1,300 people                | Same as the left                           |                                                                                                                                                                                                                  |
|              |          | Cleanroom Design        | Below                                   |                                           | Below                                      |                                                                                                                                                                                                                  |
|              |          | DB – WB process         | Class 10,000                            |                                           | Same as the left                           |                                                                                                                                                                                                                  |
|              |          | Molding process         | Class 100,000                           |                                           | Same as the left                           |                                                                                                                                                                                                                  |
|              | Test     | Production Site         | ROHM Electronics Philippines, Inc.      | Rohm Integrated Systems Thailand Co., Ltd | Same as the left                           | No change                                                                                                                                                                                                        |
|              |          | Country                 | Philippines                             | Thailand                                  | Same as the left                           |                                                                                                                                                                                                                  |
| Man          | Assembly |                         | Qualified operators                     |                                           | Same as the left                           | No change                                                                                                                                                                                                        |
|              | Test     |                         | Qualified operators                     |                                           | Same as the left                           |                                                                                                                                                                                                                  |
| Machine      | Assembly | Die bonding process     | Fully automatic die bonding machine     |                                           | Same as left (equipment type is different) | Although the equipment type is different, the relocated production line uses the same fully automated production equipment as before the relocation.                                                             |
|              |          | Wire bonding process    | Fully automatic wire bonding machine    |                                           | Same as left (equipment type is different) |                                                                                                                                                                                                                  |
|              |          | Molding process         | Fully automatic molding machine         |                                           | Same as left (equipment type is different) |                                                                                                                                                                                                                  |
|              |          | Tie bar cutting process | Fully automatic tie bar cutting machine |                                           | Same as left (equipment type is different) |                                                                                                                                                                                                                  |
|              |          | Plating process         | Fully automatic plating machine         |                                           | Same as left (equipment type is different) |                                                                                                                                                                                                                  |
|              |          | Marking process         | Fully automatic laser marking machine   |                                           | Same as left (equipment type is different) |                                                                                                                                                                                                                  |
|              |          | Lead forming process    | Fully automatic forming machine         |                                           | Same as left (equipment type is different) |                                                                                                                                                                                                                  |
|              | Test     | Test handler            | Fully automatic handler                 |                                           | Same as the left                           | No change                                                                                                                                                                                                        |
|              |          | Tester                  | Fully automatic tester                  |                                           | Same as the left                           |                                                                                                                                                                                                                  |
|              | Taping   | Taping process          | Fully automatic taping machine          |                                           | Same as the left                           | No change                                                                                                                                                                                                        |
| Method       | Assembly | Die bonding process     | Ag paste dispensing                     |                                           | Same as the left                           | In each process step, the method remains the same, and there are no changes.<br>※ Since PdCu wire is used, production conditions have been modified and forming gas has been introduced at the processing point. |
|              |          | Wire bonding process    | Thermo-sonic bonding                    |                                           | Same as the left ※                         |                                                                                                                                                                                                                  |
|              |          | Molding process         | Transfer molding                        |                                           | Same as the left                           |                                                                                                                                                                                                                  |
|              |          | Plating process         | Electroplating                          |                                           | Same as the left                           |                                                                                                                                                                                                                  |
|              | Test     | Test process            | Socket contact                          |                                           | Same as the left                           | No change                                                                                                                                                                                                        |
| Material     | Assembly |                         | Please see next page                    |                                           | Please see next page                       | -                                                                                                                                                                                                                |

## 3-2. Comparison of 4M (Material)

This page provides information  
about products in pattern A.



The difference between the gold wire products and the copper wire products is the wire material and the mold material. We have verified this change and confirmed there are no impact on quality.

|               |                 | Before change<br>Gold wire products | After change<br>Copper wire products | Changing point                         |
|---------------|-----------------|-------------------------------------|--------------------------------------|----------------------------------------|
| Lead Frame    | Frame size      | ROHM Standard design                | Same as the left                     | No change                              |
|               | Inner design    | ROHM Standard design                | Same as the left                     |                                        |
|               | Base Material   | Cu alloy                            | Same as the left                     |                                        |
|               | Surface plating | Ag plating                          | Same as the left                     |                                        |
| Die attach    |                 | Ag paste                            | Same as the left                     | No change                              |
| Wire material |                 | <b>Au</b>                           | <b>PdCu</b>                          | <b>Wire material has been changed.</b> |
| Mold compound |                 | <b>Mold resin(A)</b>                | <b>Halogen free resin (B)</b>        | <b>Mold compound has been changed.</b> |
| Outer plating |                 | 100%Sn                              | Same as the left                     | No change                              |
| Marking       |                 | Laser marking                       | Same as the left                     | No change                              |
| Carrier tape  |                 | ROHM standard material              | Same as the left                     | No change                              |
| Reel          |                 | ROHM standard material              | Same as the left                     | No change                              |
| Box           |                 | ROHM standard material              | Same as the left                     | No change                              |

## 3-2. Comparison of 4M (Material)

This page provides information  
about products in pattern B.



The difference between the gold wire products and the copper wire products is the wire material, the mold material, and the lead frame. We have verified this change and confirmed there are no impact on quality.

|               |                 | Before change<br>Gold wire products | After change<br>Copper wire products | Changing point                                                                             |
|---------------|-----------------|-------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------|
| Lead Frame    | Frame size      | ROHM Standard design                | Same as the left                     | <b>Material and frame manufacturing method will be changed (from etching to punching).</b> |
|               | Inner design    | ROHM Standard design                | Same as the left                     |                                                                                            |
|               | Base Material   | <b>Cu alloy (A)</b>                 | <b>Cu alloy (A)</b>                  |                                                                                            |
|               | Surface plating | Ag plating                          | Same as the left                     |                                                                                            |
| Die attach    |                 | Ag paste                            | Same as the left                     | No change                                                                                  |
| Wire material | Chip-to-Chip    | Au                                  | Au                                   | No change                                                                                  |
|               | Chip-to-Lead    | <b>Au</b>                           | <b>PdCu</b>                          | <b>Wire material has been changed.</b>                                                     |
| Mold compound |                 | <b>Halogen free resin (A)</b>       | <b>Halogen free resin (B)</b>        | <b>Mold compound has been changed.</b>                                                     |
| Outer plating |                 | 100%Sn                              | Same as the left                     | No change                                                                                  |
| Marking       |                 | Laser marking                       | Same as the left                     | No change                                                                                  |
| Carrier tape  |                 | ROHM standard material              | Same as the left                     | No change                                                                                  |
| Reel          |                 | ROHM standard material              | Same as the left                     | No change                                                                                  |
| Box           |                 | ROHM standard material              | Same as the left                     | No change                                                                                  |

## 3-2. Comparison of 4M (Material)

This page provides information  
about products in pattern C.



The difference between the gold wire products and the copper wire products is the wire material, the mold material, and the lead frame. We have verified this change and confirmed there are no impact on quality.

|               |                 | Before change<br>Gold wire products | After change<br>Copper wire products | Changing point                                                             |
|---------------|-----------------|-------------------------------------|--------------------------------------|----------------------------------------------------------------------------|
| Lead Frame    | Frame size      | <b>ROHM Standard design (A)</b>     | <b>ROHM Standard design (B)</b>      | <b>Lead frame size has been enlarged to improve production efficiency.</b> |
|               | Inner design    | ROHM Standard design                | Same as the left                     |                                                                            |
|               | Base Material   | Cu alloy                            | Same as the left                     |                                                                            |
|               | Surface plating | Ag plating                          | Same as the left                     |                                                                            |
| Die attach    |                 | Ag paste                            | Same as the left                     | No change                                                                  |
| Wire material |                 | <b>Au</b>                           | <b>PdCu</b>                          | <b>Wire material has been changed.</b>                                     |
| Mold compound |                 | <b>Halogen free resin (A)</b>       | <b>Halogen free resin (B)</b>        | <b>Mold compound has been changed.</b>                                     |
| Outer plating |                 | 100%Sn                              | Same as the left                     | No change                                                                  |
| Marking       |                 | Laser marking                       | Same as the left                     | No change                                                                  |
| Carrier tape  |                 | ROHM standard material              | Same as the left                     | No change                                                                  |
| Reel          |                 | ROHM standard material              | Same as the left                     | No change                                                                  |
| Box           |                 | ROHM standard material              | Same as the left                     | No change                                                                  |

## 4. Comparison of products

This page provides information  
about products in patterns A to C.



There are no changes to external dimensions or product characteristics between the gold wire products and copper wire products.

| Item                    | Comparison of gold wire products (Before change) and copper products (After change) |
|-------------------------|-------------------------------------------------------------------------------------|
| Part number             | No change                                                                           |
| External dimensions     | No change                                                                           |
| Internal structures     | No change                                                                           |
| Reference land pattern  | No change                                                                           |
| Marking                 | No change                                                                           |
| Product characteristics | There are no changes to the characteristic specified listed in the datasheet.       |

## 5. Comparison of product label

This page provides information  
about products in patterns A to C.



There are no changes to product part numbers before and after the change, although identification is possible using the internal part number on the product label.

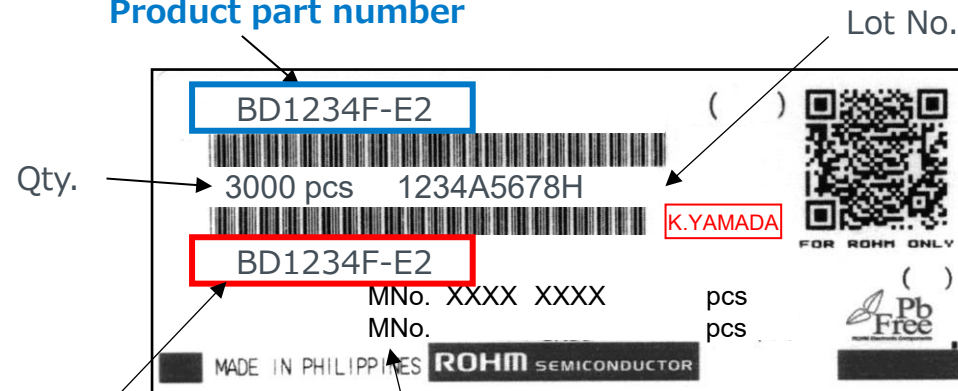
<How to identify>

For Rohm's internal product control purposes, the internal part number differs between gold wire products (before change) and copper wire products (after change). The internal part number can be found on the product label on shipping packages and reeling wheels.

|                                     | Part number | Internal part number | Remark                              |
|-------------------------------------|-------------|----------------------|-------------------------------------|
| Before change / Gold wire products  | BD1234F-E2  | BD1234F-E2           |                                     |
| After change / Copper wire products |             | BD1234F-BZE2         | We add "BZ" on internal part number |

<Before change / Gold wire products>

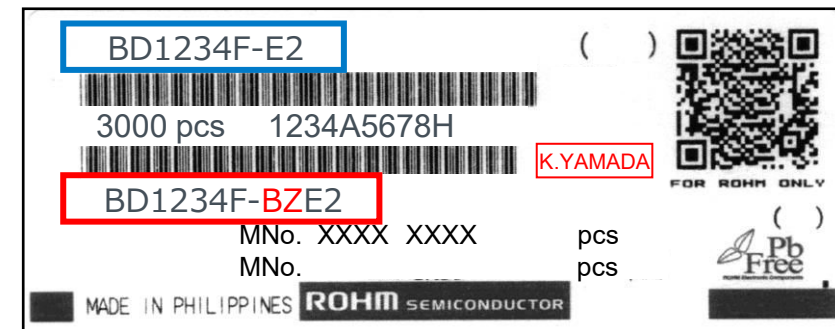
Product part number



Internal part number

Marking Lot No.

<After change / Copper wire products>



## 6. Verification for changing point

This page provides information  
about products in patterns A to C.



ROHM verified the changes in the wire material to confirm that there is no impact on quality.

| Change point                                                                                                                       | Concern                                                                                                                                            | Evaluation items                                   | criteria                                    | Pn/N        | Result                                                                                                                                                                                                                        | Judgment |
|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Melting point of materials<br>Au:1064→<br>Cu:1084, Pd:1555℃<br>Tensile strength<br>100→210MPa<br>Elasticity increases<br>78→130GPa | There is a concerns about change in bonding properties with changing material and mechanical properties.                                           | Wire bonding (1st bond)                            | Within the specifications                   | 0/30 wire   | Within the process window, the product quality meets the specified criteria and there are no issues.<br>Under production conditions, Cpk>1.67.                                                                                | Pass     |
|                                                                                                                                    |                                                                                                                                                    | Wire bonding (2nd bond)                            | Within the specifications                   | 0/30 wire   | Within the process window, the product quality meets the specified criteria and there are no issues.<br>Under production conditions, Cpk>1.67.                                                                                | Pass     |
| Vickers hardness<br>45→70Hv                                                                                                        | There is a concern about cracks under the pad due to increased impact on the pad during the first bonding, because of a harder first ball.         | Wire bonding (under-pad cracks)                    | No cracks under PAD                         | 0/30 wire   | There are no underpad cracks within the process window, so there is no issues.                                                                                                                                                | Pass     |
| Diffusion rate with aluminum<br>$1.1 \times 10^{-4} \rightarrow 1.9 \times 10^{-16} \text{ cm}^2/\text{s}$                         | There is a concerns about bonding failure and a decrease in bond strength due to low bonding performance.                                          | Wire Bonding (share strength and mode, NSOP alarm) | Within the specifications<br>No NSOP Alarm  | 0/30 wire   | Within the process window, no issues related to shear strength or shear mode were observed, and no NSOP alarms were triggered.<br>Under production conditions, Cpk>1.67.                                                      | Pass     |
|                                                                                                                                    | There is a concern about wire breakage caused by Kirkendall voids between the wire and pad.                                                        | HTSL                                               | No wire breakage caused by Kirkendall voids | 0/45 x 3Lot | No abnormalities were observed in electrical characteristics after the Reliability test.Failure signs scrutiny analysis confirmed no fracture due to Kirkendall voids, and the wire bond strength met the specified criteria. | Pass     |
| Coefficient of Thermal Expansion<br>14.2→16.5ppm                                                                                   | There is a concern about cracks at the second bond caused by increased thermal stress.                                                             | TC                                                 | No cracks at 2nd bond area                  | 0/77 x 3Lot | No abnormalities were observed in electrical characteristics after the Reliability test.<br>Failure signs scrutiny analysis confirmed no cracks at the 2nd bond area.                                                         | Pass     |
| High Ionization tendency                                                                                                           | There is a concern that the wire may become open caused by oxidation or corrosion.                                                                 | AC                                                 | No wire open caused by corrosion            | 0/77 x 3Lot | No abnormalities were observed in electrical characteristics after the Reliability test.<br>Failure signs scrutiny analysis confirmed no corrosion on the pads, and the wire bond strength met the specified criteria.        | Pass     |
|                                                                                                                                    |                                                                                                                                                    | THB                                                | No wire open caused by corrosion            | 0/77 x 3Lot | No abnormalities were observed in electrical characteristics after the Reliability test.<br>Failure signs scrutiny analysis confirmed no corrosion on the pads, and the wire bond strength met the specified criteria.        | Pass     |
| Using forming gas                                                                                                                  | There is a concern that there may be a decrease in wire bonding quality due to temperature drops caused by forming gas or abnormal gas flow rates. | Wire bonding (1st bond)                            | Within the specifications of 1st bond       | 0/30 wire   | Within the process window, the product quality meets the specified criteria and there are no issues.<br>Under production conditions, Cpk>1.67.                                                                                | Pass     |
|                                                                                                                                    |                                                                                                                                                    | Wire bonding (2nd bond)                            | Within the specifications of 2nd bond       | 0/30 wire   | Within the process window, the product quality meets the specified criteria and there are no issues.<br>Under production conditions, Cpk>1.67.                                                                                | Pass     |

## 7. Reliability tests

This page provides information  
about products in patterns A to C.



Standard reliability tests are conducted. Results from a representative product is shown below for reference.

【Pre conditions】

|                  |                                        |               |
|------------------|----------------------------------------|---------------|
| MSL              | JEDEC LEVEL 1                          | JEDEC LEVEL 3 |
| Drying           | 125°C 24h                              |               |
| Moisture soaking | 85°C 85% 168h                          | 30°C 70% 192h |
| Reflow profiles  | Pb free reflow profiles (260°C) 3times |               |

### ■ Reliability test results

\*Resistance to soldering heat testing (PC) and preconditioning were conducted at the MSL level specified for the each products.

| Reliability test |                   |                                 |             |                   |          |             |        |        | Failure signs scrutiny analysis                                    |                                        |        |
|------------------|-------------------|---------------------------------|-------------|-------------------|----------|-------------|--------|--------|--------------------------------------------------------------------|----------------------------------------|--------|
| Test item        |                   |                                 | Spec        | Condition         | Duration | Sample size |        | Result | Analysis                                                           | Pieces                                 | Result |
|                  |                   |                                 |             |                   |          | lot         | Pieces |        |                                                                    |                                        |        |
| A1               | PC                | Resistance to soldering heat    | J-STD-020   | MSL=1/ 3          | ---      | 3 Lot       | 77 pcs | Pass   | ---                                                                | ---                                    | ---    |
| A2               | THB<br>or<br>HAST | Temperature Humidity Bias       | JESD22-A101 | 85°C/85%Rh/bias   | 2000 h   | 3 Lot       | 77 pcs | Pass   | ·Corrosion of the bonding pad and Al wiring<br>·Wire strength test | 2pcs x3Lot                             | Pass   |
|                  |                   | High Accelerated Stress Test    | JESD22-A101 | 130°C/85%Rh/bias  | 192h     |             |        |        |                                                                    | 3pcs x3Lot                             |        |
| A3               | AC                | Autoclave                       | JESD22-A102 | 121°C/100%Rh      | 192 h    | 3 Lot       | 77 pcs | Pass   | ·Corrosion of the bonding pad and Al wiring<br>·Wire strength test | 2pcs x3Lot<br>3pcs x3Lot               | Pass   |
| A4               | TC                | Temperature Cycling             | JESD22-A104 | -65°C/150°C/30min | 1000cyc  | 3 Lot       | 77 pcs | Pass   | ·Passivation cracks<br>·2nd bond cracks<br>·Wire strength test     | 2pcs x3Lot<br>2pcs x3Lot<br>3pcs x3Lot | Pass   |
| A6               | HTSL              | High Temperature Storage        | JESD22-A103 | 150°C             | 2000 h   | 3 Lot       | 45 pcs | Pass   | ·Kirkendall void<br>·Wire strength test                            | 2pcs x3Lot<br>3pcs x3Lot               | Pass   |
| B1               | HTOL              | High Temperature Operating Life | JESD22-A108 | 125°C/bias        | 2000 h   | 3 Lot       | 77 pcs | Pass   | ---                                                                | ---                                    | ---    |



Electronics for the Future

## Before Change (Gold Wire)

## After Change (Copper Wire)

| Internal PN     | Public (External) PN | Internal PN       |
|-----------------|----------------------|-------------------|
| BD14215FVJ-LAE2 | BD14215FVJ-LAE2      | BD14215FVJ-LAX1E2 |
| BD14230FVJ-CE2  | BD14230FVJ-CE2       | BD14230FVJ-CX1E2  |
| BD14231FVJ-CE2  | BD14231FVJ-CE2       | BD14231FVJ-CX1E2  |
| BD14232FVJ-CE2  | BD14232FVJ-CE2       | BD14232FVJ-CX1E2  |
| BD39003EKV-C6E2 | BD39003EKV-CE2       | BD39003EKV-C6X1E2 |
| BD39003EKV-CE2  | BD39003EKV-CE2       | BD39003EKV-CX1E2  |
| BD63032MUF-CE2  | BD63032MUF-CE2       | BD63032MUF-BZCE2  |
| BD63033MUF-CE2  | BD63033MUF-CE2       | BD63033MUF-BZCE2  |
| BD79124MUF-CE2  | BD79124MUF-CE2       | BD79124MUF-CX1E2  |
| BD9571MWF-ME2   | BD9571MWF-ME2        | BD9571MWF-MX1E2   |
| BM60014FV-CE2   | BM60014FV-CE2        | BM60014FV-CX1E2   |

Public (External) PN

BD14215FVJ-LAE2

BD14230FVJ-CE2

BD14231FVJ-CE2

BD14232FVJ-CE2

BD39003EKV-CE2

BD39003EKV-CE2

BD63032MUF-CE2

BD63033MUF-CE2

BD79124MUF-CE2

BD9571MWF-ME2

BM60014FV-CE2